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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,320	09/12/2001	Jack Oon Chu	YOR919990123US2	3832
23389	7590	08/25/2005	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC			RAO, SHRINIVAS H	
400 GARDEN CITY PLAZA				
SUITE 300			ART UNIT	
GARDEN CITY, NY 11530			2814	
			PAPER NUMBER	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/936,320	CHU, JACK OON	
	Examiner	Art Unit	
	Steven H. Rao	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-129 is/are pending in the application.
- 4a) Of the above claim(s) 1-88, 90-123 and 125-129 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 89-98 and 124 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/21/2002</u> <i>already scanned</i> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledgement is made of papers received claiming priority from PCT/US00/06258 filed on March 11, 2000 which itself claims priority from U.S. provisional application 60/124299 filed on March 12, 1999 which papers have been made of record in the file.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121 / 371 , 37 CFR 1.141, 1.142 and PCT Art. 1850, 1875 and 1893.03 (d) ,etc. and :

- I. Claims 1-12, 112 and 118 , drawn to a seven layer structure with the sixth layer having stress , classified in class 257 , subclass 194 + .
- II. Claims 13-25, 113 and 119 , drawn to a six layer structure with the sixth layer having stress classified in class 257 , subclass 11+.
- III. Claims 26-36, 114 and 120 , drawn to a five layer device wherein the second layer has stress instead of the sixth layer , classified in class 257 , subclass 18
- IV. Claims 37-51,115 and 121, drawn to a five layer structure , classified in class 257 subclass 22.
- V.. Claims 52-68,116,122 drawn to a eight layer structure , classified in class 257 , subclass 35.
- VI. Claims 69-88,117 and 123, drawn to a nine layer structure , classified in class 257 , subclass 40 .

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- VII. Claims 89-98, and 124 , drawn to a four layer structure , classified in class 257 , subclass 19 .
- VIII. Claims 99-109 and 125, drawn to a five layer structure , classified in class 257, subclass 22 +.
- IX Claims 110 and 111, drawn to a nonGe channel three layered device, classified in class 257 , subclass 18 .
- X. Claims 126 to 129 , drawn to a method of forming a FET , classified in class 438, subclass 590.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups 2 through 10, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Les Sivos on July 22, 2005 and August 04, 2005 a provisional election was made without traverse to prosecute the invention of GR. VII (7) , claims 89-98 and 124 .

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1-88 and 99-123 and 125- 129 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 89-98 and 124 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami et al. (U.S. Patent No. 5,241,197, herein after Murakami) (also listed by Applicants' in their IDS and cited by Examiner Rao in corresponding PCT).

With respect to claim 89 Murakami describes a layered structure for forming a Ge channel field effect transistors comprising : a single crystalline substrate, (Figure 2A # 1, col. 3 lines 40, col. Col.2 line 58) a first layer of relaxed Si_{1-x}Ge_x formed epitaxially on said substrate where Ge fraction x is the range from 0.5 to 0.8, (Figure 2B # 33 , col. 7 lines 16, claim 18) a second layer of Ge formed epitaxially on said first layer (Figure 2 B # 33) whereby said second layer is under compressive strain (figure 10 A) , and having a thickness less than its critical thickness with respect to said first layer, (Embodiment 6 , col. 7 lines 20-25, graphs) a third layer of undoped Si_{1-x}Ge_x formed epitaxially on said second layer, (figure 5 # 55) and a fourth layer of gate dielectric formed on said third layer. (figure 9 B # 86).

With respect to claim 90 Murakami describes the layered structure of claim 89 further including first and second over-shoot layers a $\text{Si}_{1-m}\text{Ge}_m$ and $\text{Si}_{1-n}\text{Ge}_n$, Within a drain relief structure of said first layer of relaxed $\text{Si}_{1-x}\text{Ge}_x$ for the case when x is greater than 0.5. (col. 7 lines 16, claim 18 range 0 to 1)

With respect to claim 91 Murakami describes the layered structure of claim 89 wherein said first over-shoot layer, $\text{Si}_{1-m}\text{Ge}_m$, within said strain relief structure of said first layer has a Ge fraction m , where m is the range from 0.05 to less than 0.5. (col. 7 lines 16, claim 18 range 0 to 1)

With respect to claim 92 Murakami describes the layered structure of claim 89 wherein said second over-shoot layer, $\text{Si}_{1-m}\text{Ge}_m$, within the strain relief structure of said first layer has a Ge fraction m , in the range from 0.01 to 0.1, (col. 7 lines 16, claim 18 range 0 to 1) and having a thickness less than its critical thickness with respect to said first layer. (Embodiment 6, col. 7 lines 20-25, graphs, first layer).

With respect to claim 124 Murakami describes the layered structure of claim 89 further including, electrical isolation regions created by the selective removal of at least said fourth layer through said second layer, a gate electrode formed on said gate dielectric of said fourth layer, a source electrode formed and located on one side of said gate electrode, and a drain electrode formed and located on the other side of said gate electrode whereby a field-effect transistor structure is formed. (structure of FET see Murakami e.g. figures 9 A, B, etc.).

The claim limitations "electrical isolation regions created by the selective removal of at least said fourth layer through said second layer, a gate electrode formed on said

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gate dielectric of said fourth layer, a source electrode formed and located on one side of said gate electrode, and a drain electrode formed and located on the other side of said gate electrode whereby a field-effect transistor structure is formed. " in claim 124 are taken to be product-by –process limitations and non limiting. A product –by –process claim is directed to the product per se, no matter how actually made . See In re Fessman, 180USPQ 324,326 (CCPA 1974); In re Marosi et al., 218 USPQ289,292 (fed. Cir. 1983); and particularly In re Thrope, 227 USPQ 964, 966 (fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product gleamed from the process steps, which must be determined in a " product by process" claim and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in " product by process" claims or not. In conclusion , the process limitations does not change or make the resulting product patentably distinguished over the applied Murakami reference

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571)272-1718. The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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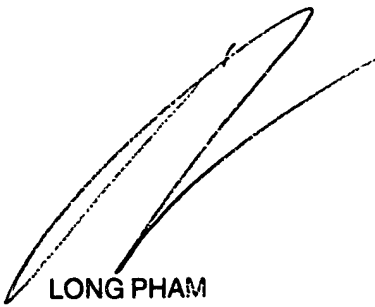
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven H. Rao

Patent Examiner

August 19, 2005



LONG PHAM
PRIMARY EXAMINER